

Warmup:

Take out Extended Problem (1/4 sheet)

For 5 minutes: Read *silently* and think about how to get started on it.

Algebra2—Extended Problem #1

The contents of a purse are not revealed to us, but we are told that there are exactly 6 pennies and at least one nickel and one dime. We are further told that if the number of dimes was changed to the number of nickels, the number of nickels was changed to the number of pennies, and the number of pennies was changed to the number of dimes, the sum would remain unchanged. Find the *least* possible and the *largest* possible number of coins the purse contains.



HINT: I know 6,6,6 works

in \$

Extended Problem Write-Up

1. **State the problem** in your own words. Your problem statement should be clear enough so that someone not familiar with the problem will understand what you are trying to do.
2. **Describe the process** you took in attempting to solve the problem. Use any notes you may have or your memory. Include the steps that did not work as well. Complete this part of the write-up even if you did not come up with a solution. If you received help, describe what kind of help you received and how it helped you.
3. **State your solution.** Be as clear as possible. Include any generalizations you came up with.
4. **Evaluate yourself.** Some questions you may want to ask yourself: Was this problem meaningful? Was it too hard or too easy? Did you enjoy working on it?
5. **Assign yourself a grade.** Give a grade letter for your work and explain why you think you deserve this grade.

Mon., Oct. 18 (DUE: Test Corrections [by 3:00pm]):
Solving Systems (substitution/elimination)
Rock n Rap worksheet.

Wed., Oct. 20: More substitution/elimination

Fri., Oct. 22 (DUE: Extended Problem): Catch Up/Review Day 1

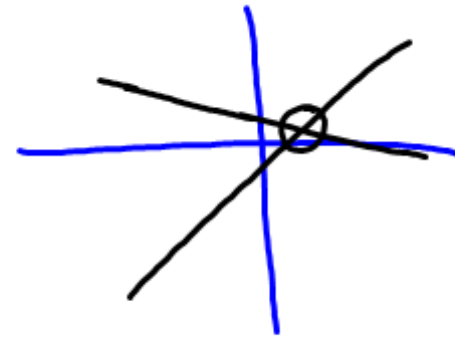
Tues., Oct. 26 (DUE: Cookies Writeup): Review Day 2

Thurs., Oct. 28 (DUE: All Homework from this Unit): Assessment

Substitution

- ① solve for one variable (x or y)
- ② substitute ① into the other equation
- ③ solve for the variable that is left over
- ④ substitute ③ into either equation and find the value for the other variable

$$\begin{aligned} 4x + 3y &= 4 \\ 2x - y &= 7 \end{aligned}$$



$$\textcircled{1} \quad \frac{-y}{-1} = \frac{-2x+7}{-1}$$

$$y = 2x - 7$$

$$\begin{aligned} \textcircled{2} \quad 4x + 3(2x - 7) &= 4 \\ 4x + 6x - 21 &= 4 \\ 10x &= 25 \end{aligned}$$

$$\frac{10x}{10} = \frac{25}{10}$$

$$\textcircled{3} \quad x = 2.5$$

$$\begin{aligned} \textcircled{4} \quad 2(2.5) - y &= 7 \\ 5 - y &= 7 \\ y &= -2 \end{aligned}$$

Elimination

① strategically multiply an equation by a constant.

② add/subtract equations to eliminate a variable.

③ solve for the single variable

④ substitute ③ back into either equation to find the value of the other variable.

$$\begin{aligned} 4x + 3y &= 4 \\ (2x - y &= 7) \times 2 \end{aligned} \quad \text{①}$$

$$\begin{aligned} \text{②} \quad & 4x + 3y = 4 \\ & - (4x - 2y = 14) \end{aligned}$$

$$\begin{array}{r} 5y = -10 \\ \underline{5} \quad \underline{5} \end{array}$$

$$\text{③} \quad y = -2$$

$$\begin{aligned} \text{④} \quad & 2x - (-2) = 7 \\ & 2x + 2 = 7 \\ & \quad \underline{-2} \quad \underline{-2} \\ & 2x = 5 \\ & \quad \underline{2} \quad \underline{2.5} \\ & x = 2.5 \end{aligned}$$

$$\begin{aligned} 3x - y &= 0 \\ 4x + 3y &= 26 \end{aligned}$$

$$\left. \begin{aligned} x &= 2 \\ y &= 6 \end{aligned} \right\} (2, 6)$$

$$\begin{aligned} 4x + 9y &= 1 \\ 4x + 6y &= -2 \end{aligned}$$

$$\left. \begin{aligned} x &= -2 \\ y &= 1 \end{aligned} \right\} (-2, 1)$$

Constraints / Inequalities

$$\text{rock} \leq 18$$

$$\begin{array}{l} x = \text{rock} \quad \text{cds} \\ y = \text{rap} \quad \text{cds} \end{array}$$

$$\text{time: } 175 \leq 18x + 25y \quad / \quad 18x + 25y \geq 175$$

$$\text{cost: } 15,000x + 12,000y \leq 150,000$$

$$\begin{array}{l} \# \text{ of} \\ \text{rock vs. rap: } x > y \end{array}$$

